

Case 3632***Anathyris monstrum* Khalfin, 1933 (currently *Anathyrella monstrum*; Brachiopoda, Athyridida): proposed conservation of the specific name**

Fernando Alvarez

Departamento de Geología, Universidad de Oviedo, Oviedo 33005, Spain
(e-mail: fernando@geol.uniovi.es)

Tatyana L. Modzalevskaya

*All-Russian Geological Research Institute (VSEGEI), Srednij pr. 74,
St. Petersburg 199106, Russia* (e-mail: TModzalevskaya@vsegei.ru)

Abstract. The purpose of this application, under Article 81.1 of the Code, is to preserve the name of the widely cited fossil brachiopod *Anathyris monstrum* Khalfin, 1933 by ruling that the two unused ‘varietal’ names, which together ambiguously comprised the species, are unavailable from their original descriptions in Khalfin (1933a).

Keywords. Nomenclature; taxonomy; Brachiopoda; Rhynchonellata; Athyridida; *Anathyris*; *Anathyrella*; *Anathyrella monstrum*; *Anathyrella monstrum rotundata*; *Anathyrella monstrum mucronata*; Russia; Solomino Horizon; uppermost Frasnian.

1. Khalfin (1933a, p. 37) described *Anathyris monstrum*, giving two different descriptions, both based on specimens from the same locality, the Frasnian limestones of the village Zharkovsky in the exposure of the left bank (the paper has equivalent Russian and English texts, and all quotations from it herein are from the original English text, uncorrected). Khalfin gave what he called a ‘descriptoin (sic) of adult specimens of *Anathyris monstrum*’ (p. 37 – Russian text, p. 62 – English text), which were shells ‘with long straight hinge-line. The cardinal angles are either extended and mucronata (sic) . . . or rounded off . . ., accordingly the hinge-line either corresponds to the maximal width of the shell, or is a little lesser’. Thereupon, he distinguished two varieties of the adult stage of this species, var. *rotundata* and var. *mucronata* (pp. 37–38, 62) followed (pp. 40, 63) by a ‘description of young specimens of *Anathyris monstrum*’, which were ‘. . . transversaly oval . . . shells. . . the maximal width’ being ‘approximately in the middle of the shell and a little near to the hinge-line’. The hinge-line was ‘almost straight, long enough, but still much less, than the maximal width of the shell . . .’. Khalfin (1933a) illustrated his new species on pl. V, fig. 17, pl. VI, figs. 1–4, and pl. VII, figs. 1–6, as well as figs. 5–11 in the text. In the explanation of these plates (pp. 69, 71), he used the specific name ‘*Anathyris monstrum* n. sp.’ only for ‘the young specimen’. In the remaining captions, when illustrating adult specimens, Khalfin referred to them as ‘*Anathyris monstrum* n. sp., var. *mucronata*’ or as ‘*Anathyris monstrum* n. sp., var. *rotundata*’. The state of maturity of the specimen of var. *rotundata* in pl. V, fig. 17, was not specified in the caption. Khalfin (1933a) did not designate holotypes or use the term ‘type’ for either *A. monstrum* sensu stricto or its two ‘varieties’, and no later author has proposed any

lectotype or neotype. Concerning the two ‘varieties’, at the end of the description Khalfin (1933a, pp. 42, 65) wrote, ‘Perhaps it would be more correct to consider these forms, as independent species’, but he did not attribute this rank to them formally. There were two spellings of the specific name *monstrum* in Khalfin (1933a); by a typesetting error, the specific name was also given as ‘*monstrnm*’ in the caption to Plate VI. We do not believe this has been noted by any subsequent authors and so, acting as First Revisers, we hereby choose ‘*monstrum*’ as the correct original spelling.

2. Under Article 45.6.4 of the Code, a name following a binomen is ‘subspecific if first published before 1961 and its author expressly used one of the terms “variety” or “form”...’, (except for certain circumstances that do not apply here). These varieties were proposed for two sets of large, adult individuals (thus not for two separate ‘age forms’, as defined in the Glossary for the ‘infrasubspecific entity’ entry). If one variety were for young individuals as such, and the other for older ones, these would indeed be infrasubspecific entities. Also, since the final remarks dwelt on their differences with a suggestion that they could be considered as distinct species, one cannot easily say Khalfin was presenting them as ‘variants of noninterrupted variability or polymorphism’. The matter is not unambiguous, but the two varieties could feasibly be considered as available subspecific names. If the varieties ‘*rotundata*’ and ‘*mucronata*’ were to be ranked as subspecies, under Article 46.1 of the Code, the nominotypical subspecies *Anathyris monstrum monstrum* must also be included. Khalfin’s (1933a) text clearly shows that he only considered *A. monstrum* to comprise two, not three ‘varieties’ so one (or both) of his new varieties must be a synonym of *A. monstrum monstrum*. This is confirmed by the fact that Khalfin (1933b) soon afterwards abandoned his var. *rotundata* into the synonymy of *A. monstrum* and elevated *A. mucronata* to specific rank. There are two growth stages: the first, in which Khalfin (1933a) included all the young/small specimens from the type locality and called simply, ‘*Anathyris monstrum* n. sp.’; and the second, in which he included all the adult/large-sized specimens from the type locality. As was noted in the preceding paragraph, he referred to those adults with rounded extremities as ‘*Anathyris monstrum* n. sp., var. *rotundata*’, and to those with the cardinal extremities more or less mucronate as ‘*Anathyris monstrum* n. sp., var. *mucronata*’. Under Article 17.3, the availability of all three subspecific names is not affected by their representing particular life stages of an animal.

3. In the same year, Khalfin (1933b) listed ‘*Anathyris monstrum* Khalf.’ among the species included ‘at the present time in the genus *Anathyris*’ [all quotations from this work are translated from the original Russian]. Under the headings of ‘*Anathyris monstrum* Khalf.’ and ‘*Anathyris mucronata* Khalf.’ Khalfin (1933b) cited Khalfin (1933a) which is thus assumed (e.g. by Modzalevskaya et al., 2013) to have been published later than the former. The examination of the publication date of Khalfin (1933a) showed that the permission for printing was granted by the State Censor (GORLIT) on 7 September 1932. The manuscript was sent for typesetting on 14 March 1933, while the corrected proofs were signed to press on 4 July 1933. The publication schedule for Khalfin (1933b) was as follows: the permission for printing was granted by the State Censor (GORLIT) on 8 July 1933, the manuscript was sent for typesetting on September 9 1933, while the corrected proofs were signed to press on 10 December 1933. It would be extremely unlikely that a volume with Khalfin’s (1933a) paper was not printed before 10 December 1933 (the date when 1933b was

signed to press). In addition, Khalfin (1933b) cited the exact page number of the *A. monstrum* description in 1933a. He would not have known the page number, if he had not seen the final proofs at least. In the printing practice in the former Soviet Union the pagination was done very late in the typesetting process, and the final pagination would not have been known to the author at the early proof correcting stage. However, in the absence of any outside evidence of precise day or month, both works are to be dated as 31 December 1933. In that case, in this paper we formally award priority to Khalfin (1933a) under Article 24.2 (First Reviser action). No varieties of ‘*monstrum*’ were listed by Khalfin (1933b), although the name ‘*rotundata*’ appeared as a ‘n. var.’ of the closely related ‘*Anathyris Ussoffi* n. sp.’ (Khalfin 1933b, p. 112). Khalfin (1933b) illustrated two ‘young’ (small) specimens and one adult (large) specimen (the latter in pl. 4, fig. c1-c2) of *A. monstrum*. The adult is the same specimen whose illustrations Khalfin (1933a, pp. 37, 62) cited under the heading ‘*Anathyris monstrum* n. sp.’ but which in the caption to pl. VI, fig. 1a-d was referred to as ‘*Anathyris monstrum* n. sp., var *rotundata*’. Khalfin’s (1933b) synonymy of *A. monstrum* explicitly included this same specimen. Finally, after accepting the variety *rotundata* as adults of ‘*Anathyris monstrum* Khalf.’, and including what he had previously (1933a) illustrated as ‘*Anathyris monstrum* n. sp., var *rotundata*’ in the synonymy of ‘*Anathyris monstrum* Khalf.’ (1933b, pp. 120, 124), Khalfin (1933b, p. 125) upgraded his other variety to ‘*Anathyris mucronata* Khalf.’ (see also Khalfin 1946, p. 58, fig. 16a-c).

4. After Khalfin (1946), virtually all authors (e.g. Grunt, 1980, 1986; Rzhonsnitskaya & Modzalevskaya, 1996; Rzhonsnitskaya et al., 1998; Yazikov & Shcherbanenko, 2011; Yazikov et al., 2011; Modzalevskaya et al., 2013) have ignored the names ‘*rotundata*’ and ‘*mucronata*’ since these two ‘varieties’ appeared to fall within the range of the high infrapopulation variability of a single species, *A. monstrum*. In a revision of the Devonian faunas of the Kuznetsk Basin, Modzalevskaya et al. (2013, p. 46) used *Anathyrella monstrum* as the valid name (with a change of genus), again regarding the two ‘varieties’ (or subspecies) as only ‘morphological variations’ in the adult stage. They also provided an emended diagnosis that both encompasses the whole range of variation of the species and serves to distinguish it from its congeners.

5. No name-bearing type for *Anathyris monstrum* has ever been designated so its type series consists of syntypes (Article 73.2). In order to define the nominal taxon *Anathyrella monstrum* objectively, we originally considered it necessary and appropriate to designate a specimen from Khalfin’s collection as lectotype. The specimen should not be a juvenile but an adult, with all the characteristic morphological characters already developed. Following Recommendation 74B (Preference for illustrated specimens), we intended to designate as lectotype the adult specimen illustrated by Khalfin (1933a, pl. 6, fig. 1a-d). Unfortunately, Khalfin (1933a) assigned all adults of ‘*A. monstrum*’ to either ‘var. *mucronata*’ or ‘var. *rotundata*’, and in the original figure caption, Khalfin (1933a, pl. 6, fig. 1a-d) explicitly included the above-mentioned specimen in his ‘var. *rotundata*’. Since Article 72.4.1 excludes from the type series any specimens ‘that the author . . . refers to as distinct variants (e.g. by name, letter or number),’ this specimen (as is also true for all of Khalfin’s adult specimens) is thus not a member of the type series of *A. monstrum*. The entire type series of this species, and (under Article 47.1) of its nominotypical subspecies *A. m. monstrum*, consists of young

specimens, which we regard as unsuitable candidates for lectotype status. The only complete and reasonably undistorted adult specimen that could be considered as a possible lectotype is the one illustrated by Khalfin (1933a, pl. 6, fig. 1a-d; 1933b, pl. 4, fig. 3c1-c2; see also Modzalevskaya et al., 2013, fig. 22, H-J).

6. It could be argued that this brachiopod taxon is not frequently mentioned in published literature but in palaeontology the number of published works on particular invertebrates is often low. Such invertebrates may, however, be widely used for geological mapping and stratigraphy and the data on which many conclusions and maps are based are generally not released or published. It is not uncommon for a superficially small mistake in identification or nomenclature to lead to vast areas being wrongly dated, mapped, and subsequently paleogeographically interpreted, even though the key taxa were seldom mentioned in publications. Devonian biostratigraphers and palaeontologists while investigating the position of the very important Frasnian/Famennian boundary (Upper Devonian) commonly use brachiopods to identify the geological age of the successions. The boundary interval is characterized by a gradual change in the brachiopod assemblages: the assemblage with *Cyrtospirifer ussoffi* (Khalfin) and *Anathyrella monstrum* (Khalfin) (index-species of the Solomino Horizon) is replaced by the assemblage with *Cyrtospirifer tschenyschewi* Khalfin and *Mesoplica praelong* (Sowerby) (index-species of the Peshcheka Horizon) (Racki, 1998; Rzhonsnitskaya et al., 1998; Geldern, 2004; Izokh, 2011; Yazikov et al., 2011; Yazikov & Shcherbanenko, 2011). These assemblages are also used in many other papers on various palaeontological and stratigraphic subjects (e.g. Gutak et al., 2011, etc.).

7. The ambiguity in Khalfin (1933a) involving the three names *monstrum*, *rotundata* and *mucronata*, leaves the universally used name [*Anathyrella*] *monstrum* with a type series consisting of young, poorly determinable specimens, while the variety *rotundata* is typified by a well-preserved adult specimen possessing the definitive characters of the species. Khalfin (1933b) and subsequent authors believed that this specimen was the most suitable type for *monstrum*. The simplest way to solve this problem is to follow Khalfin's original intention and to regard the names of varieties *rotundata* and *mucronata* as merely descriptive terms for adult variation in a polymorphic species, and not available for nomenclature from their use in Khalfin (1933a). This would allow recognition, as lectotype of *Anathyris monstrum*, of the specimen figured by Khalfin (1933b on pl. 4, fig. 3c1-c2 and 1933a, pl. 6, fig. 1a-d). This specimen was recently rediscovered in the Museum of the Polytechnical Institute, Tomsk (MPIT N 20/28-II) by Modzalevskaya et al., (2013, fig. 22, H-J) and so we conditionally propose this specimen as lectotype herein. If the Commission were to support this application the lectotype designation would be valid from the date of publication of the relevant Opinion. For those authors who do not endorse the accepted synonymy the name *Anathyris mucronatus* would still be available from Khalfin (1933b).

8. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to rule that the names *rotundata* Khalfin, 1933a and *mucronata* Khalfin, 1933a, as published in the binomina *Anathyris monstrum* var. *rotundata* and *Anathyris monstrum* var. *mucronata*, are not available from Khalfin (1933a);
- (2) to place on the Official List of Specific Names in Zoology the name *monstrum* Khalfin, 1933a, as published in the binomen *Anathyris monstrum*.

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Comments on this case are invited for publication (subject to editing) in the *Bulletin*; they should be sent to the Executive Secretary, I.C.Z.N., c/o Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk).